# Design and production of Pumps and Eqiupement

Using the best CAD/CAM/CAE solution for engineering design, validation and manufacturing of products

- Hydraulic and mechanical design of pumps and equipment

- Generating technical and after sales documentation

- Simulation an Validation of products

- Manufacturing of model, prototype pumps and other parts or serial production

- Controlling and Inspection

- After sale services

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Product Data Management (PDM) products manage and synchronize our design data across our entire enterprise

All data are securely stored and indexed
in one database – Vault:

- Design data
- Sketches and documentation
- Manufacturing data, NC programs ...
- Supplier data
- Materials
- Cost calculations, etc
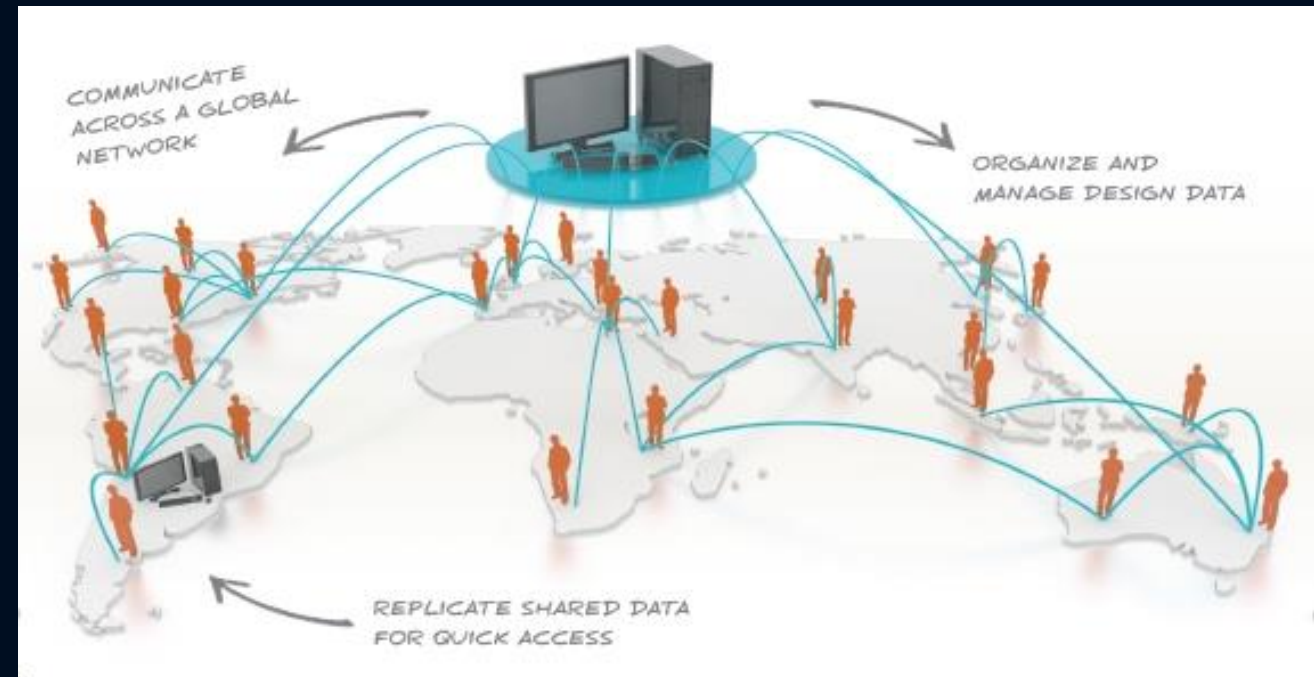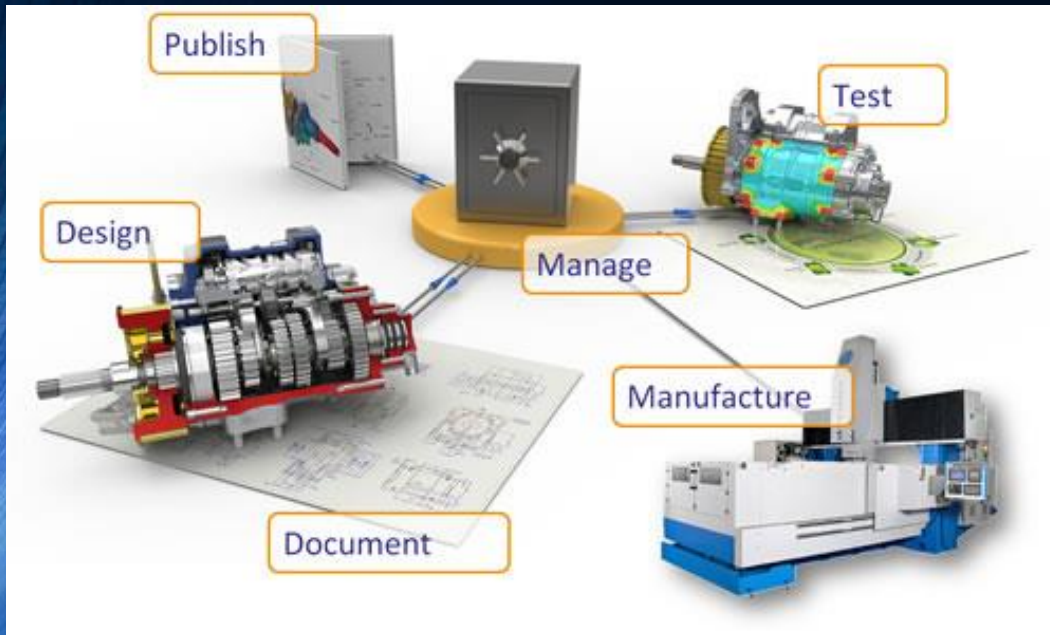
Everyone involved in the process share information and collaborate on designs - inside and outside the organization in multiple locations

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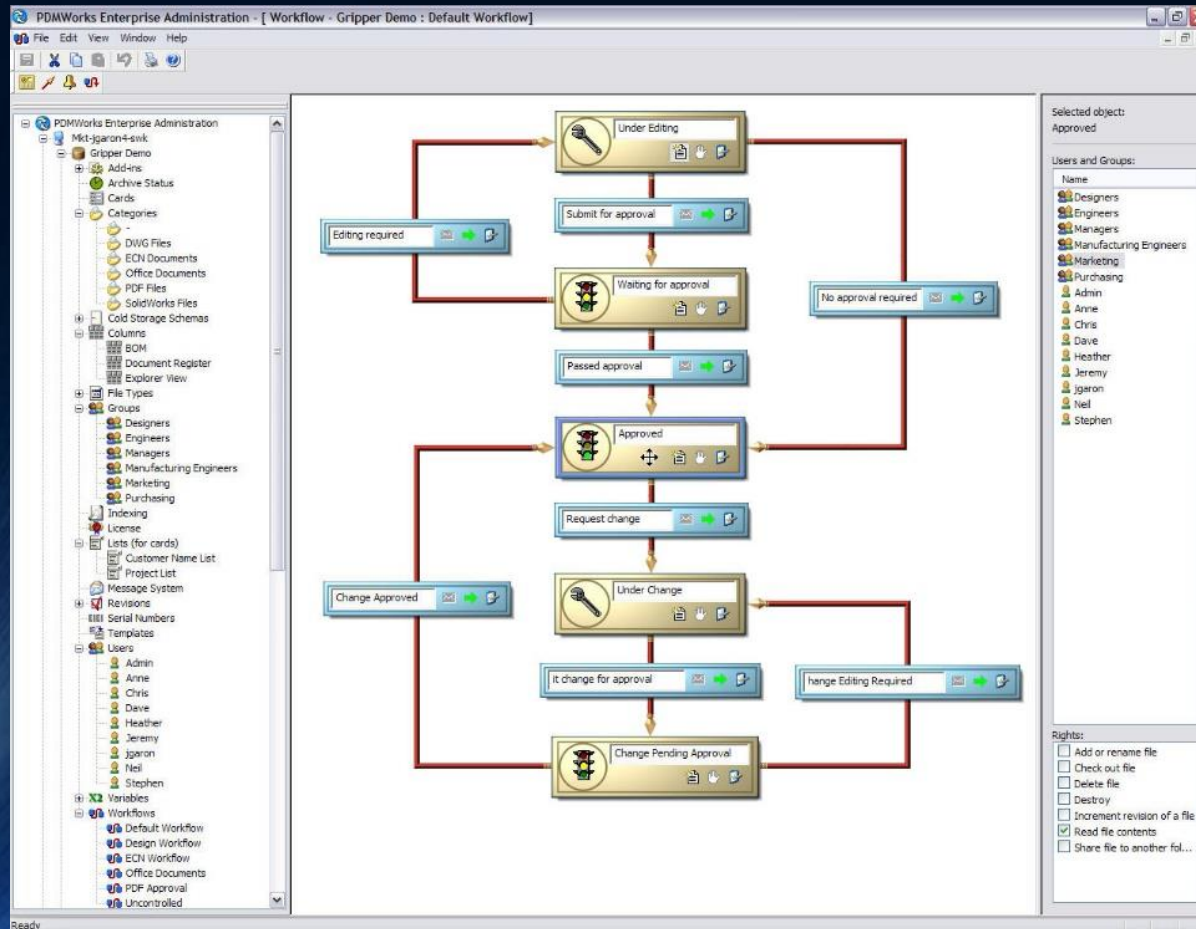
Creating an electronic workflow to formalize, manage, and optimize development, document approval and engineering change processes

Product Data Management (PDM) products manage and synchronize yur design data across our entire enterprise
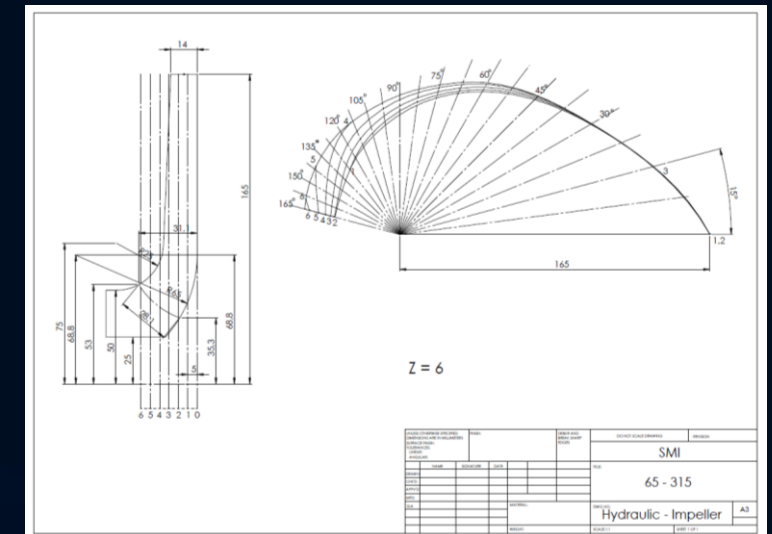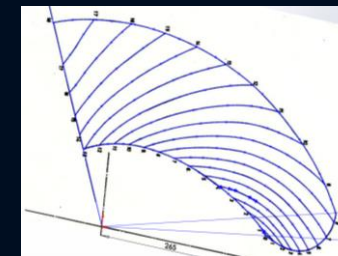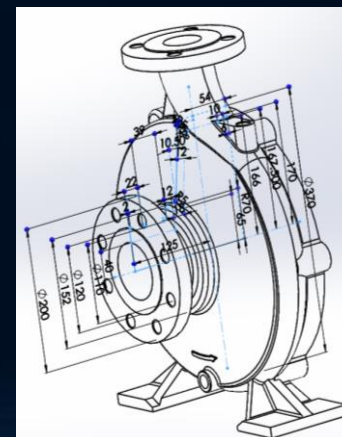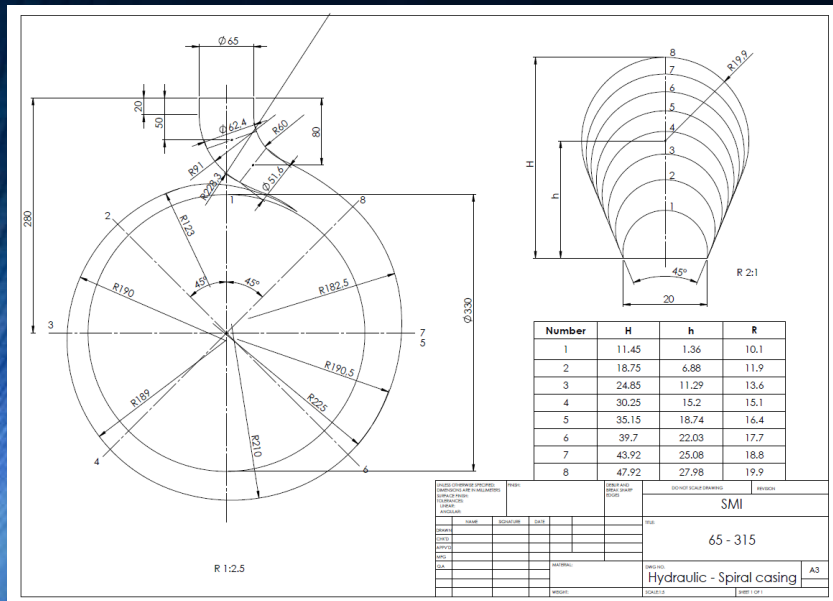
Revision Control
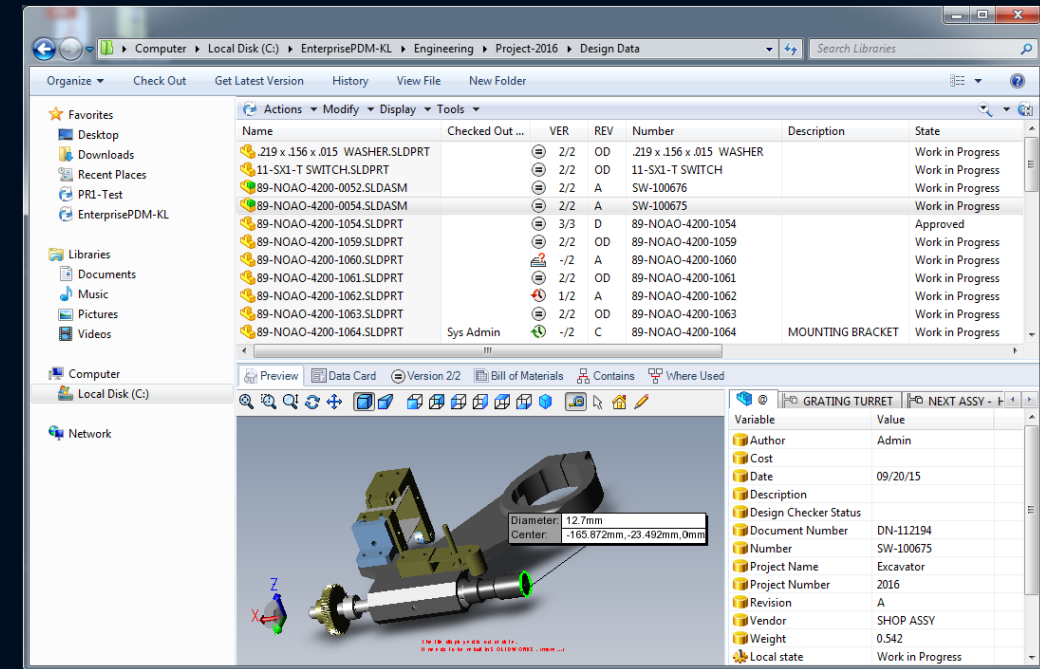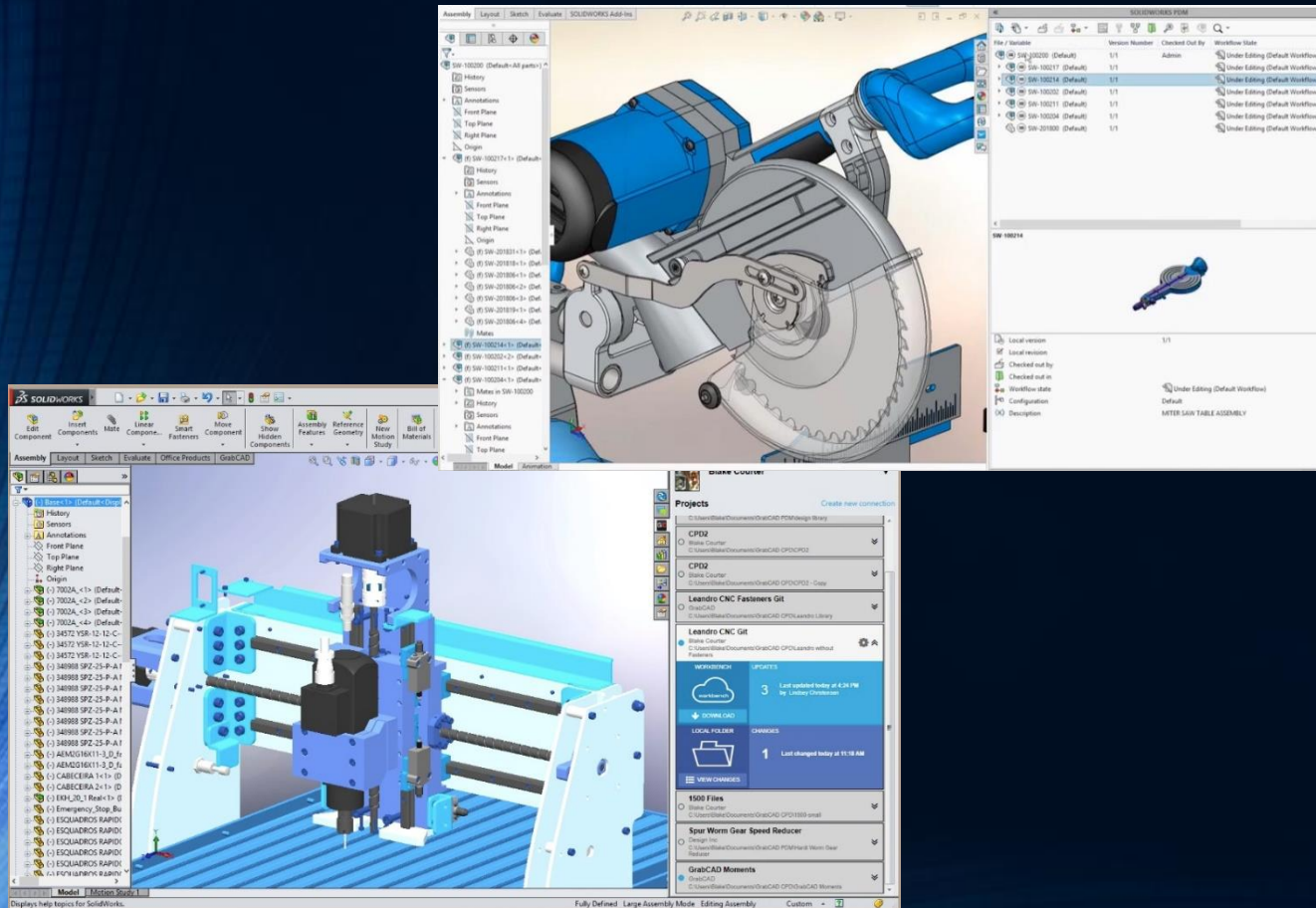
Search and integrated preview In user friendly environment – Windows explorer

Find and Reuse Design Data

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Hydraulic and mechanical design of pumps and equipment
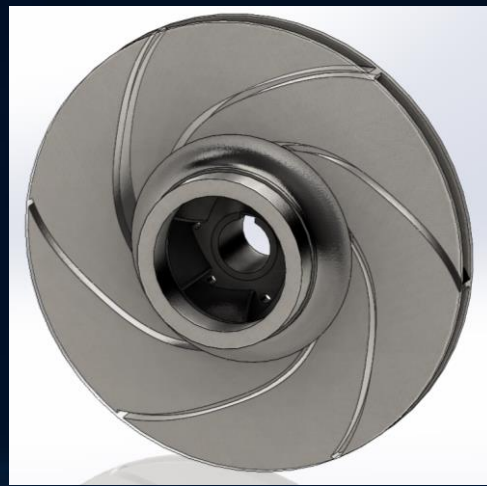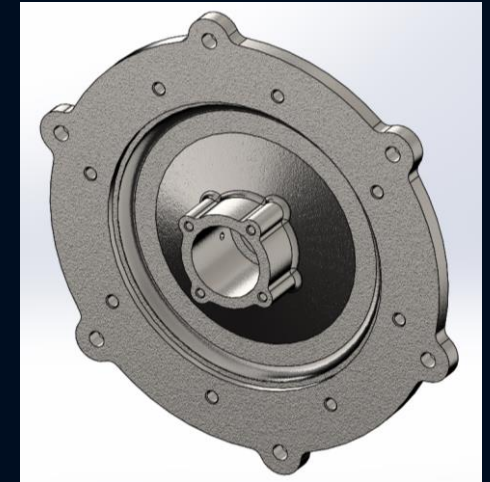
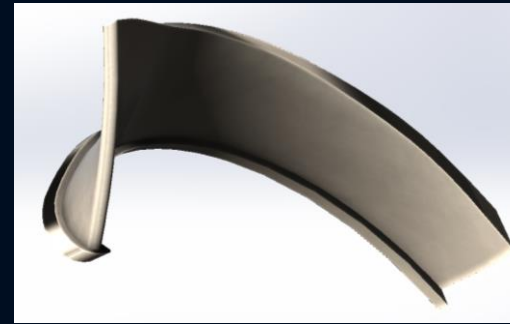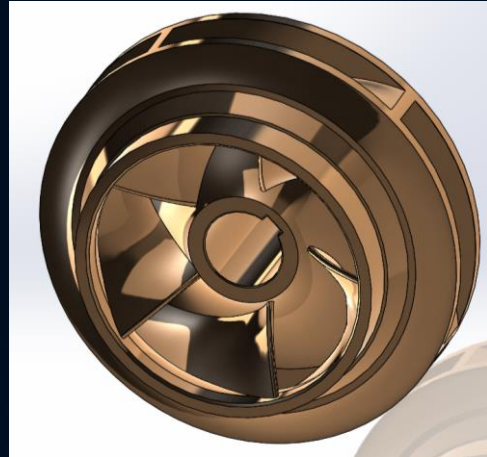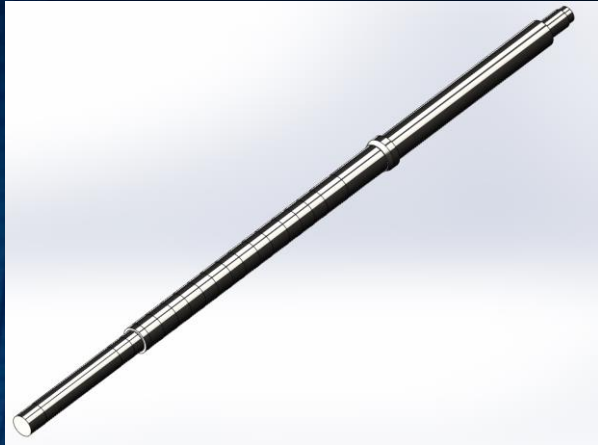Hydraulic and mechanical design of Volute
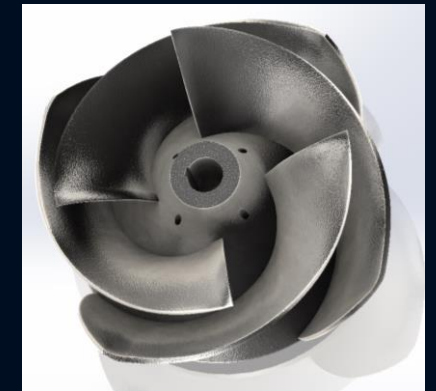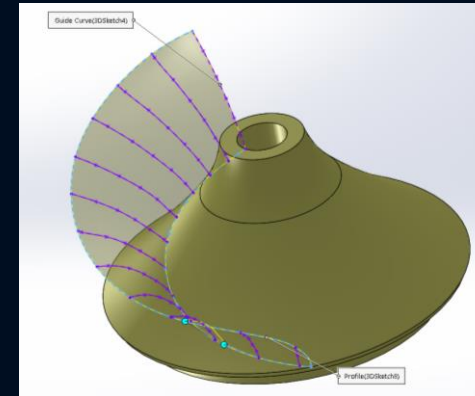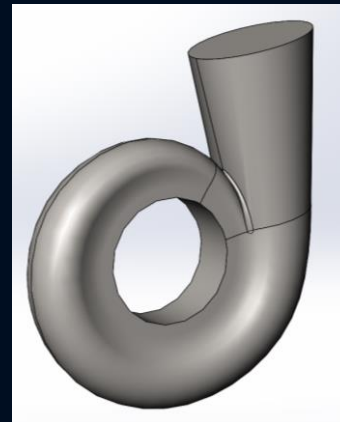
Hydraulic and mechanical design of Impeller

Hydraulic and mechanical design of pumps and equipment

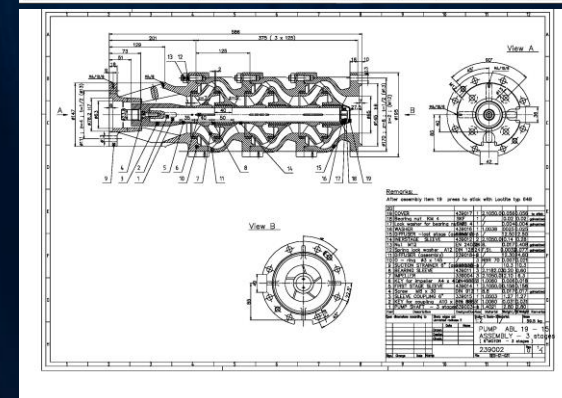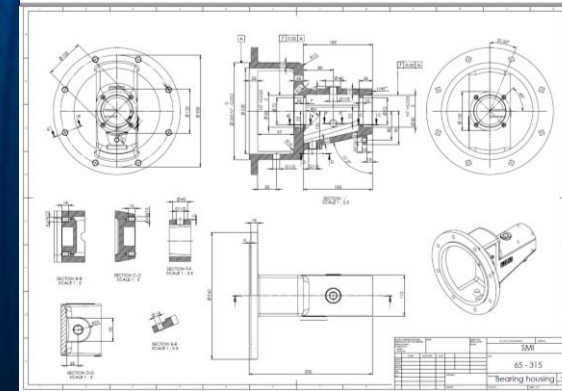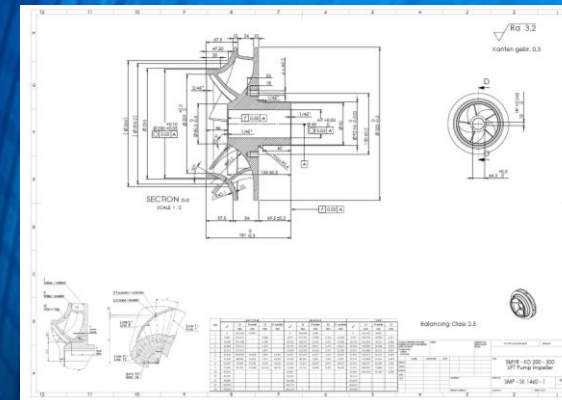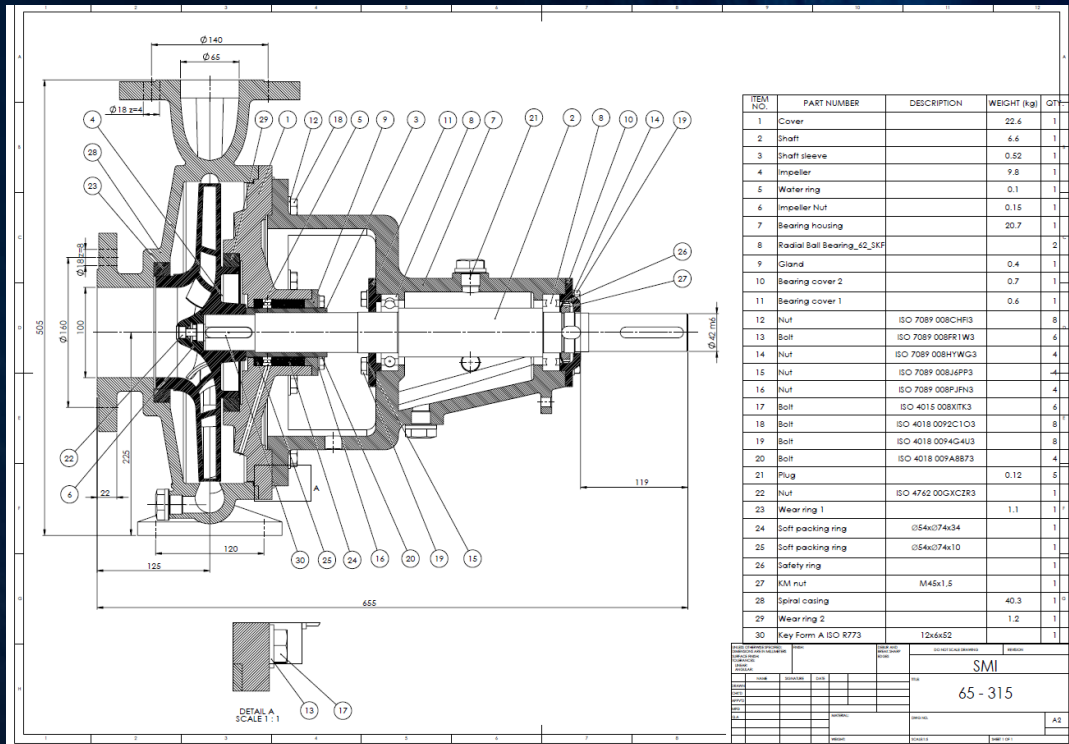- Mechanical design of other components
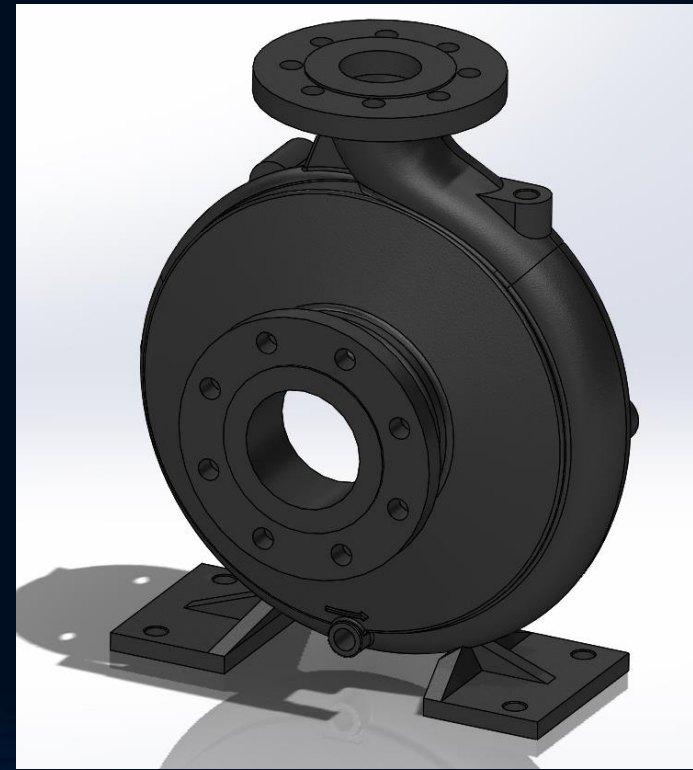
Hydraulic and mechanical design of pumps and equipment

- Creating and checking functionality (motion study) of assemblies and subassemblies
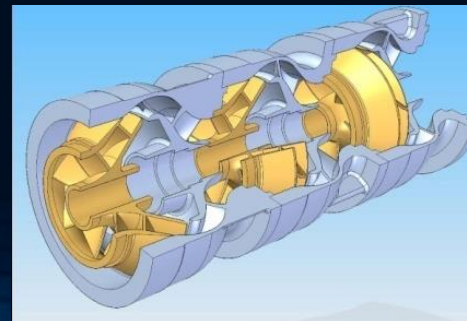
Generating technical documentation and specifications

- Assembly drawings
- Work shop drawings
- Drawings for control and inspection
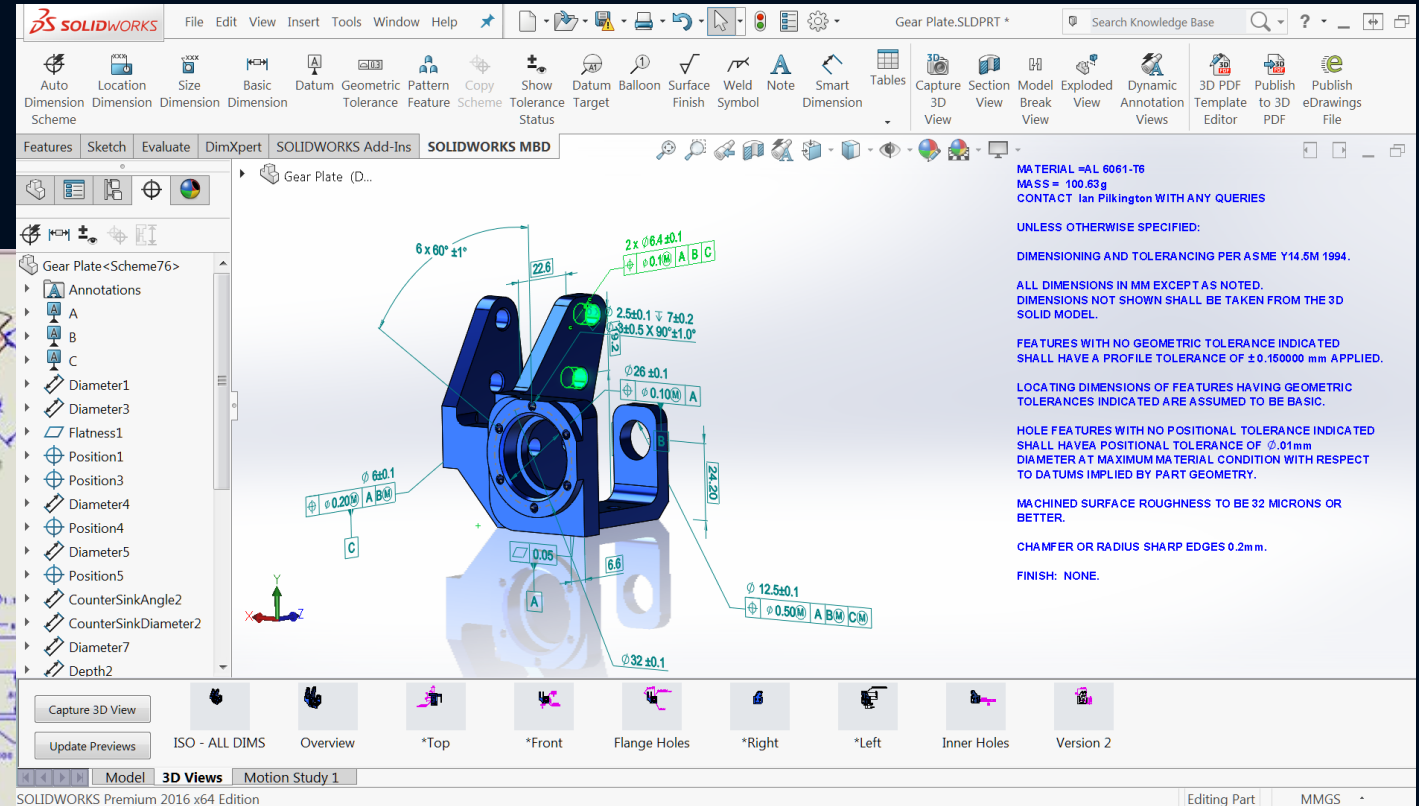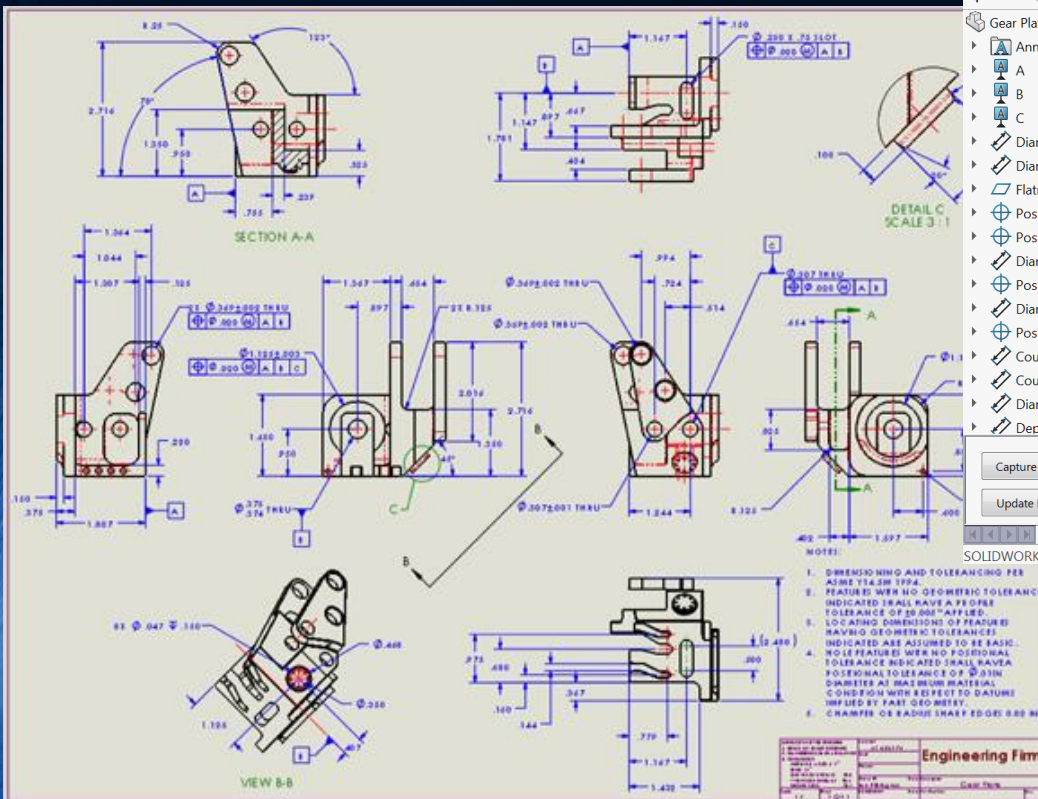- Technical specifications
- Templates

Generating technical documentation and specifications

Integrated drawingless manufacturing solution

Classic documentation

Model Based Definition - Documentation

# Generating after sales and marketing documentation

- Spare parts
- Manuals
- Technical specifications
- High quality images, etc...

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Simulation and Validation

In design process – during the designer are looking
for the best solution
- Structural analysis with static and dynamic load
- Thermal analysis
- Deformation with large displacement
- Structural Optimization analysis
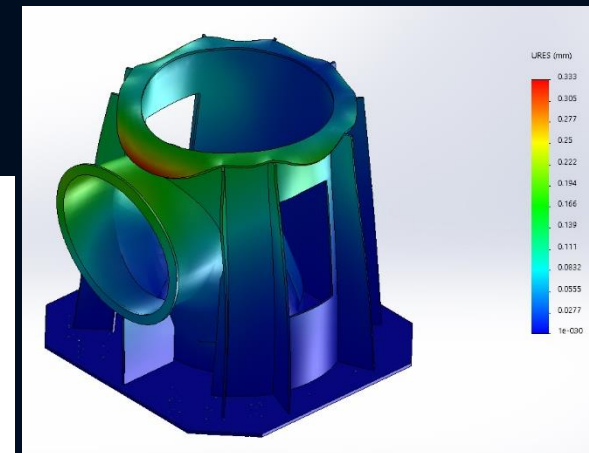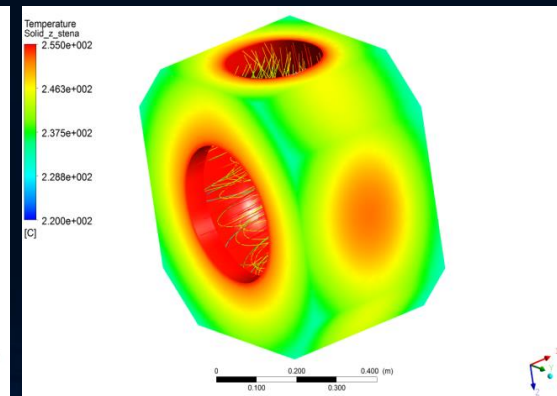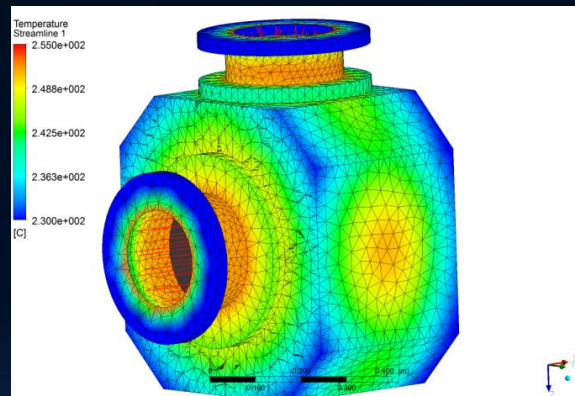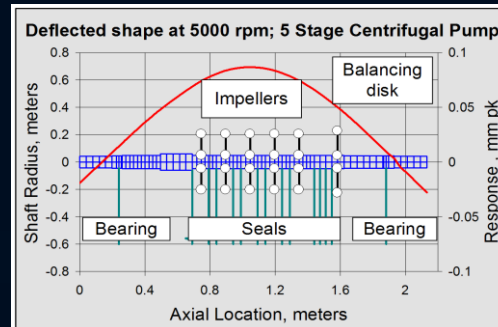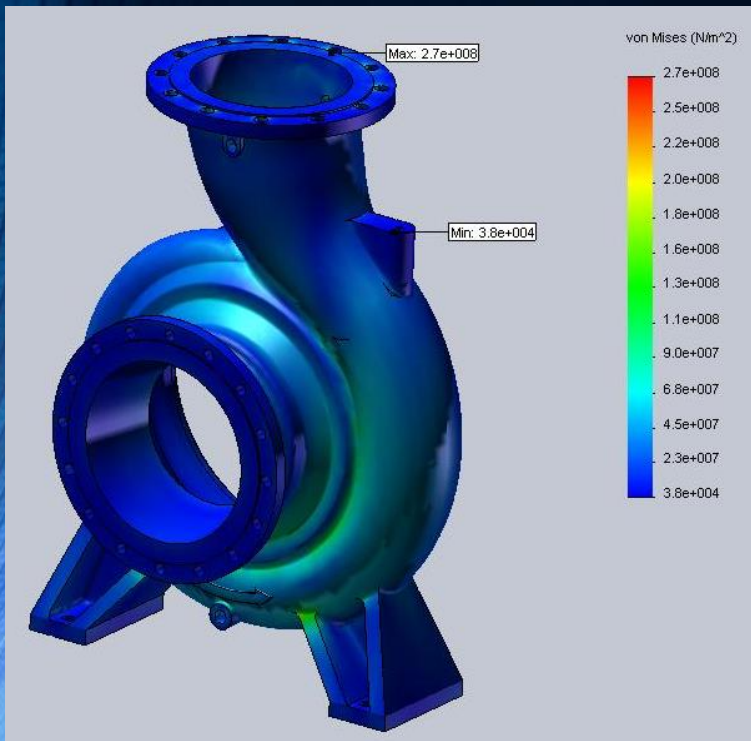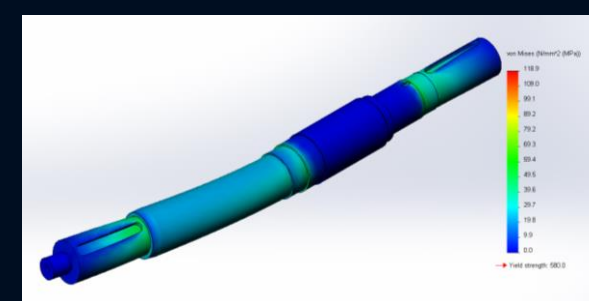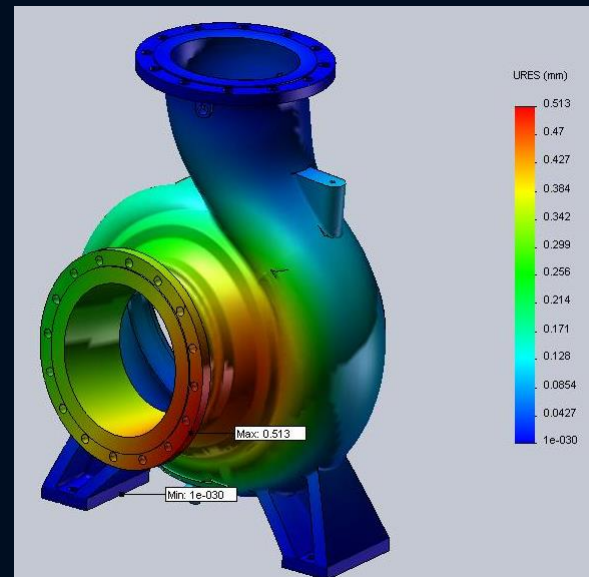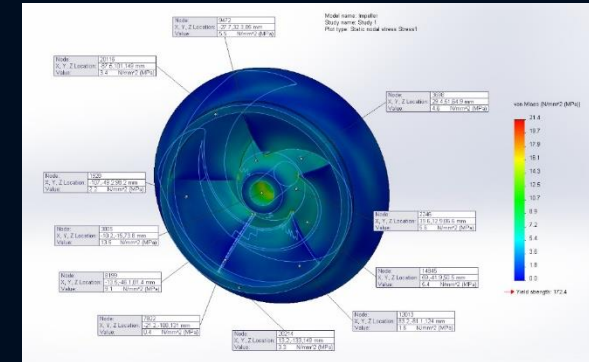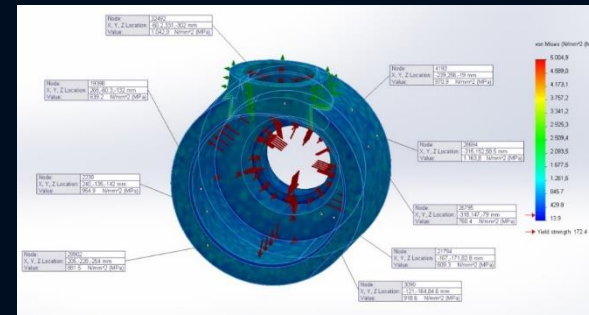
Simulation and Validation
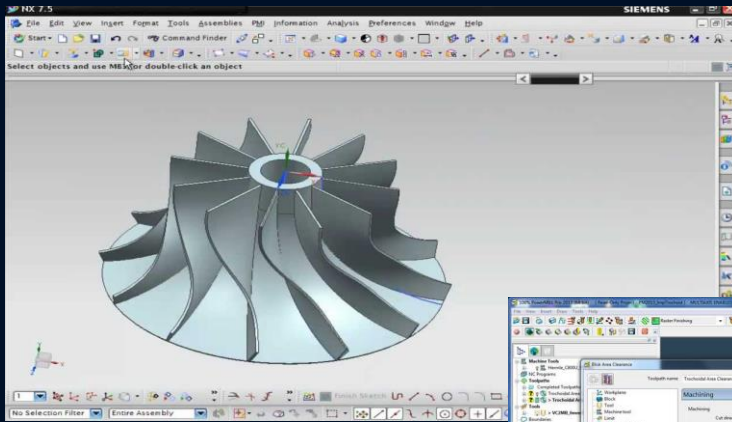
External Validation
- CFD Analysis - Flow Simulation
- Fluid flow
- Heat transfer
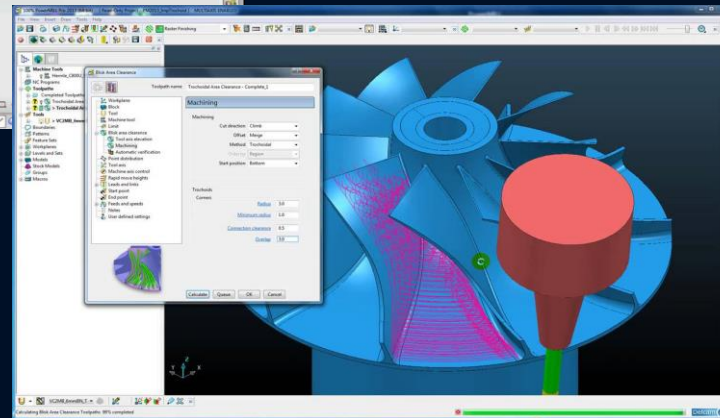- Displacement distribution from a coupled thermal-stress
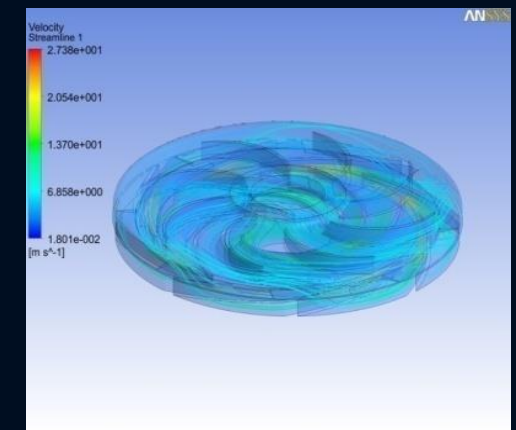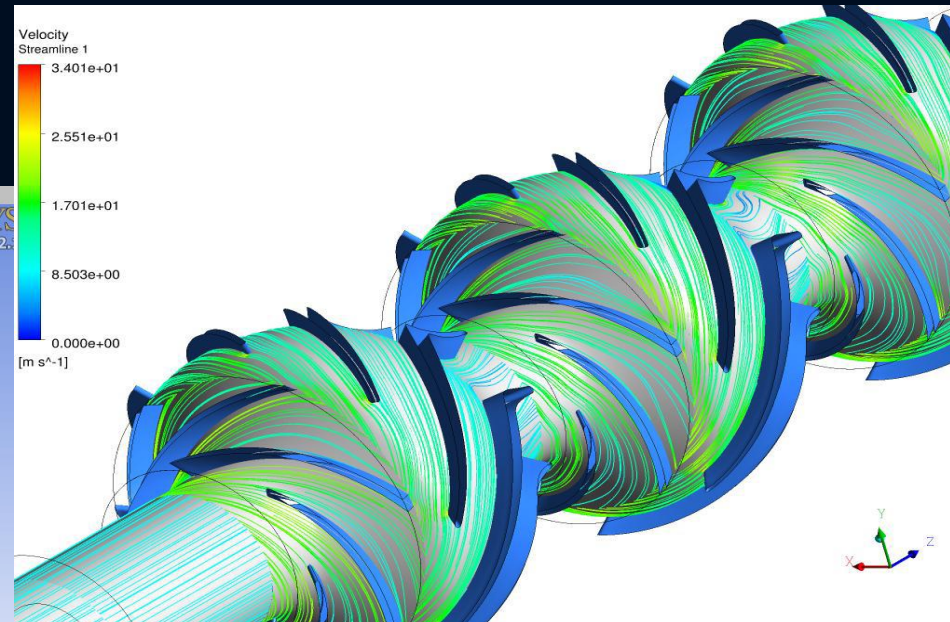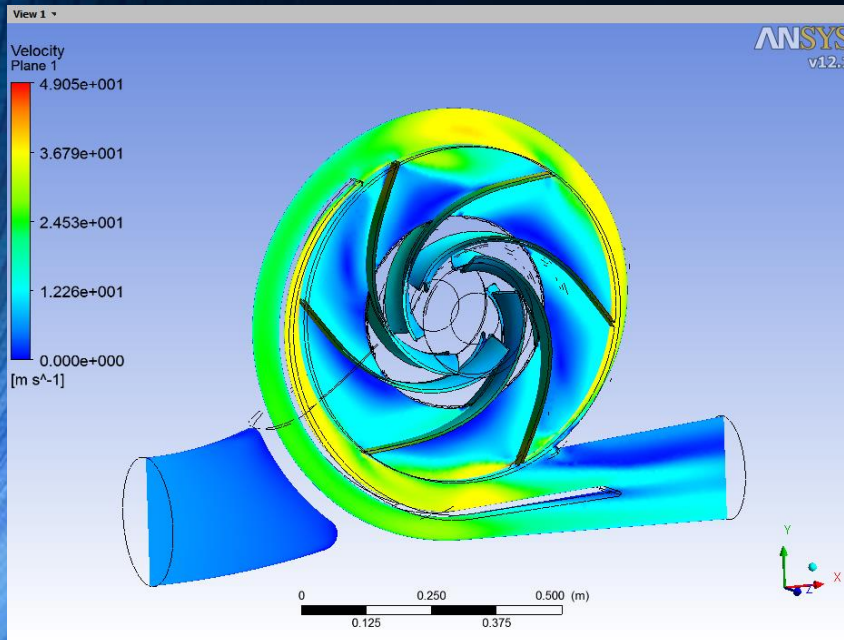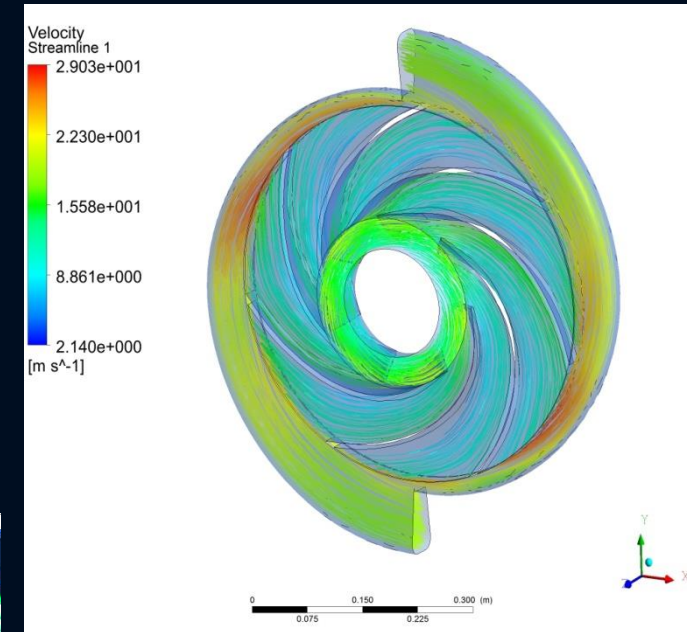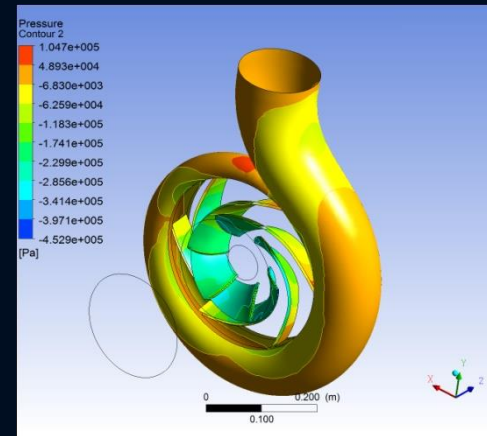
Preparing for production and Manufacturing

SAMPLE:
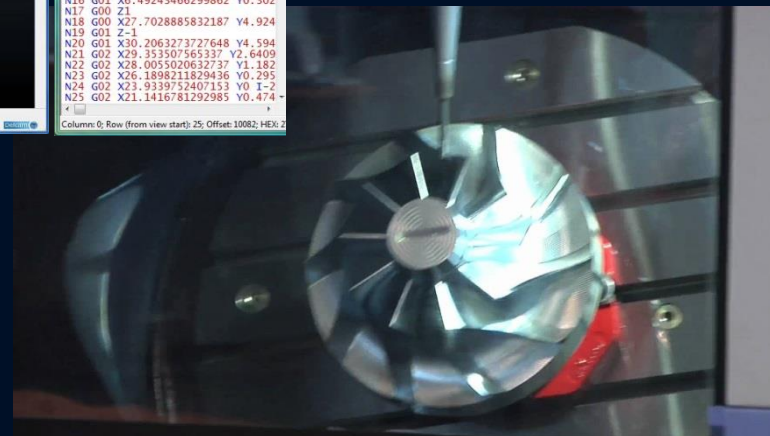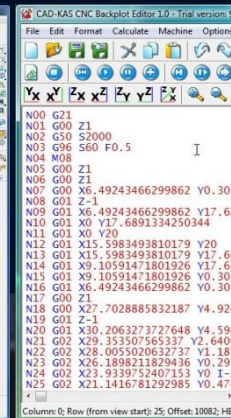- Manufacturing of Impeller for prototype pump (with 5 axis machine) using special CAM strategies

3D CAD MODEL

NC CODE

CAM PREPARATION

MANUFACTURING

Preparing for production and Manufacturing

SAMPLE:
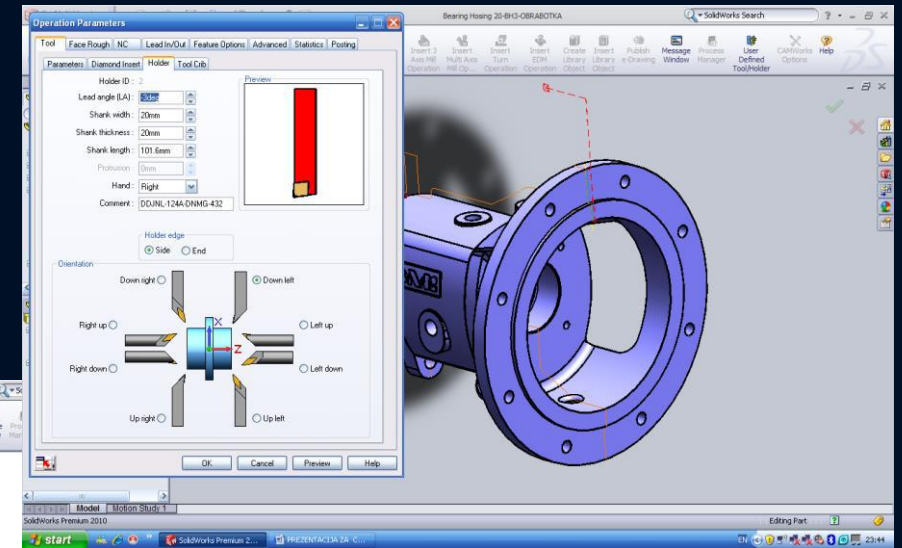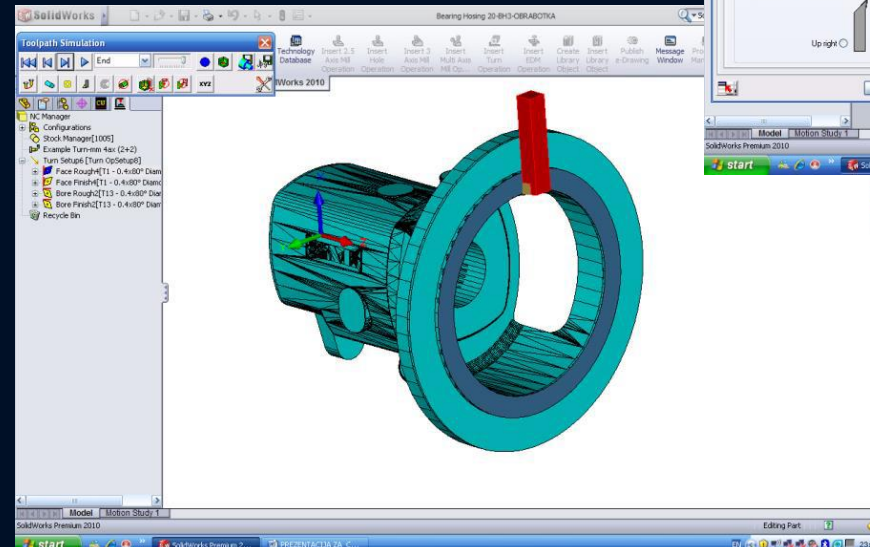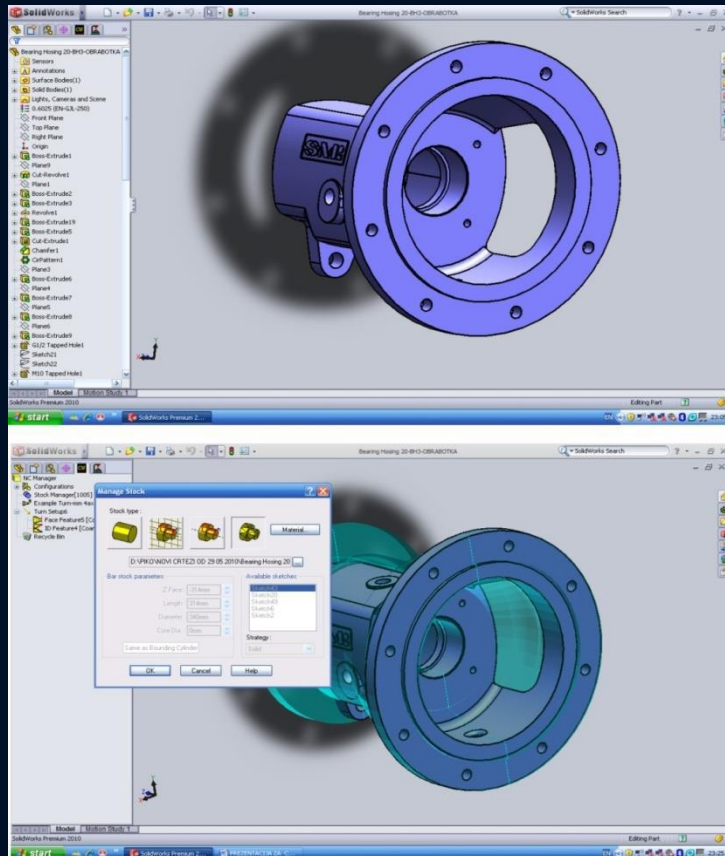- Manufacturing of Impeller for prototype pump (with 3 axis machine)
- Manufacturing of difusor

Preparing for production and Manufacturing

<u>Preparing for serial production with implementation of CAM software</u>
- Some 3D models of parts are used as a input in CAM software
- Any change in the drawings is automatically changed in the CNC program for machining
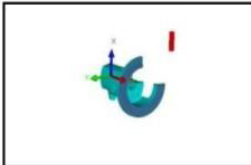
Preparing for production and Manufacturing

Preparing for serial production with implementation of CAM software
- Technological data: Feed, Speed, Tolls ...
- NC code for: Milling – 2 to 5 axis, Turning, Turn-Mill machines

Preparing for production and Manufacturing

Specific industry machining solution
-Robot programming
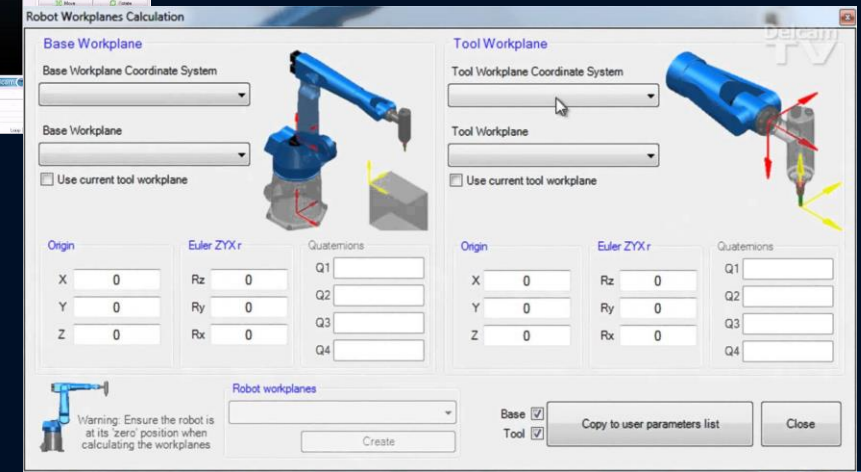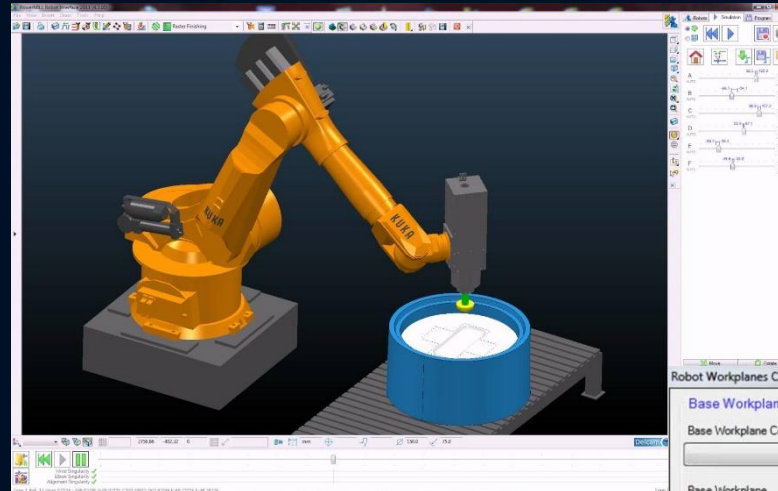
Controling and inspection

- Automatically Excel table creation (Measuring List) from 2D Drawings in CAD, PDF or JPG format
- Save time and eliminate possibility of mistakes

System recognize:
- Dimension
- Tolerances
- Geometrical tolerances
- Notes

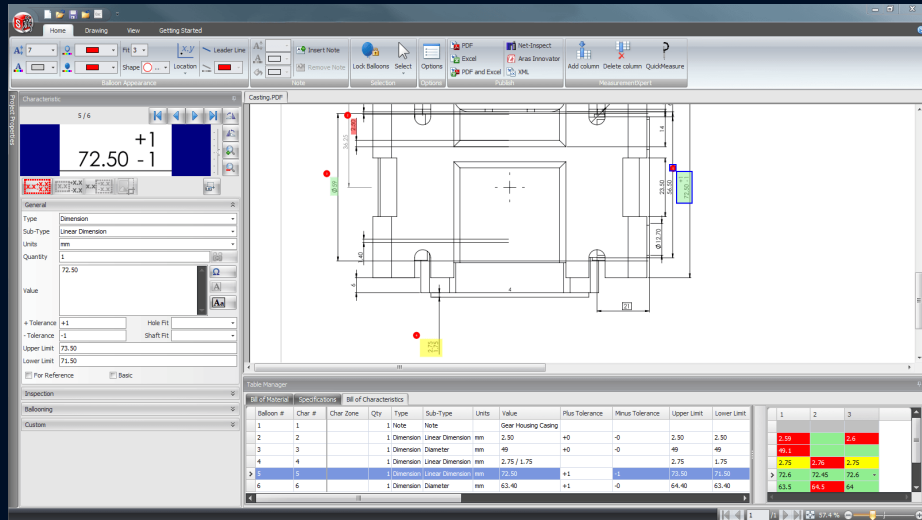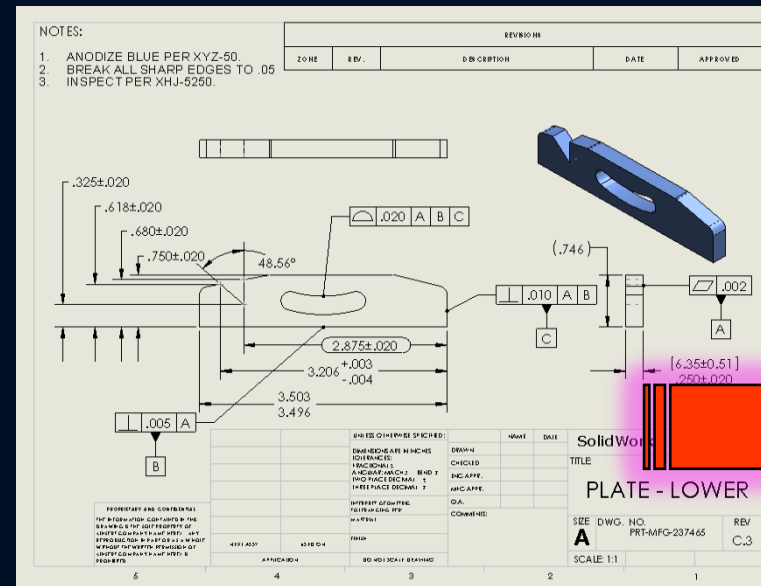# Product Data Management System

BASIC RULE – EVERUBODY MUST USE SAME DATABASE

- The Data are Securely stored and indexed and concerns about version control and data loss are eliminated

- Sharing and collaborating designs with people inside and outside the organization in multiple locations.

- Create an electronic workflow to formalize, manage, and optimize development, document approval, and engineering change processes.

- Secure Access
- Revision Control
- Find and Reuse Design Data
- Audit Trail
- Integrated Search
- Advanced Search and Favorites
- Integrated eDrawings Preview
- Multi-Document Preview
- Scalability

- Automated Neutral File Creation
- Custom Configuration
- Automated Data Import and Export
- Serial Number Generators
- Distributed Design Teams
- Remote Access
- Automated Approval Process
- Email Notifications
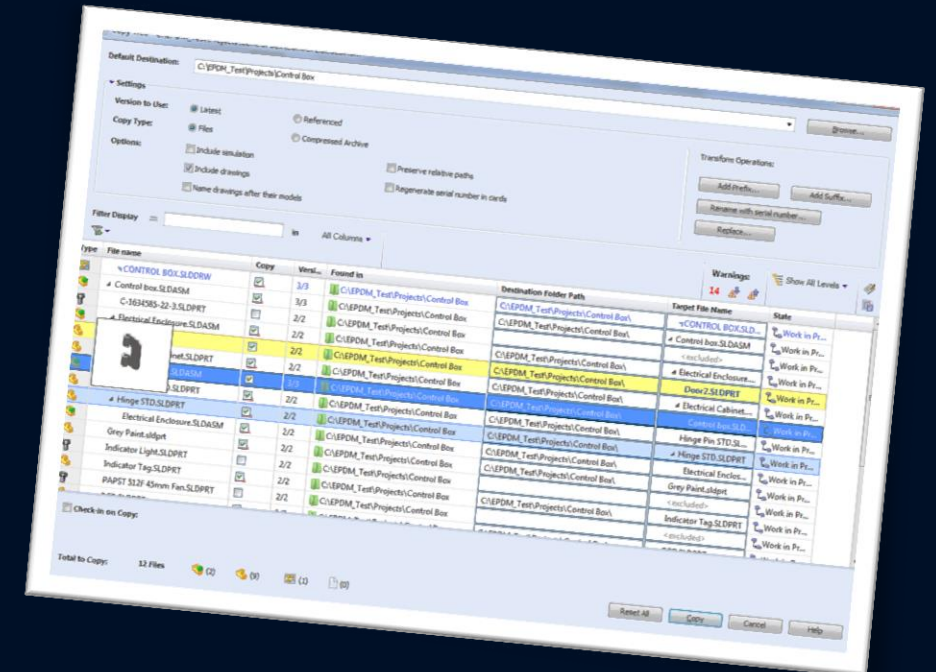
Rapid Prototyping and Reverse Engineering

3D printing

ONYX   FIBERGLASS   CARBON FIBER

NYLON   KEVLAR   HSHT FIBERGLASS
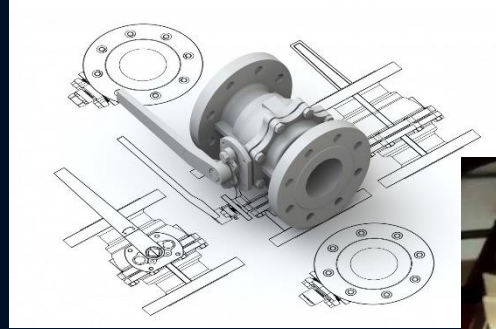
Reverse Engineering - From physical to CAD model

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